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Exchange processes in aqueous solutions of saccharides

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Abstract

The results of an experimental study of proton-exchange processes in aqueous solutions of sucrose and dextran with a molecular weight of 40 000 by the NMR technique with pulse magnetic field gradient (PMFG) are reported. The lifetimes of the proton in the state of saccharide hydroxyl groups in aqueous solutions and the probability distribution functions of this quantity in both dilute and highly concentrated solutions are determined with the use of the special NMR-PMFG procedure. It is shown that the concentration dependences of the saccharide hydroxyl proton lifetimes and the self-diffusion coefficients of water show a well-pronounced correlation.